

# **Essays on Field Experiments and Impact Evaluation**

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## **AKADEMISK AVHANDLING**

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## ABSTRACTS

### **Paper 1: Improving Welfare Through Climate-Friendly Agriculture: The Case of the System of Rice Intensification**

We use rich survey data to investigate the economic impact of a climate-friendly rice farming method known as the system of rice intensification (SRI) on the welfare of rain-dependent small-holder farmers in Tanzania. SRI reduces water consumption by half, which makes it a promising farming system in the adaptation to climate change in moisture constrained areas, and it does not require flooding of rice fields, resulting in reduced methane emissions. Endogenous switching regression results suggest that SRI indeed improves yield in rain-dependent areas, but its profitability hinges on the actual market price farmers face. SRI becomes profitable only when the rice variety sells at the same market price as that of traditional varieties, but results in loss when SRI rice sells at a lower price. We argue that the effort of promoting adoption of such types of climate-friendly agricultural practices requires complementary institutional reform and support in order to ensure their profitability to small-holder farmers.

### **Paper 2: Selling now or later, to process or not? The role of risk and time preferences in rice farmers' decisions**

In this study, we carry out experiments to measure risk, ambiguity, and time preferences of Tanzanian rice farmers and use the results to explain actual field behavior. In particular, we look into previously unexplored post-harvest decisions of farmers, i.e., whether to sell paddy (unprocessed) or processed rice and whether to sell the harvest immediately or store it for future sale. Processing and storing rice implies higher expected revenues but processing costs, price uncertainties, and a delay in income. Our results show that estimated risk and time preferences predict farmers' field behavior. Impatient farmers are less likely to store paddy, and risk-averse farmers are less likely both to process and to store paddy for future sales. These results imply that there is scope for improving rice farmers' welfare substantially by addressing the uncertainties and problems associated with rice processing and storage.

### **Paper 3: Credit, LPG Stove Adoption and Charcoal Consumption: Evidence from a Randomised Controlled Trial**

The high start-up cost of modern cooking appliances has been shown to be the key factor that hinders transition of households from biomass energy to clean energy in developing countries. We designed a randomised controlled trial to identify the impact of relaxing households' liquidity constraints on LPG stove adoption and charcoal use in urban Tanzania. In collaboration with a local micro-finance institution, we randomly assigned households into a subsidy treatment and a credit treatment, which included different repayment arrangements. We show that relative to households in the control group, adoption of LPG stoves reduced charcoal use by 47.5% in the treated group. However, providing subsidies for stove purchases resulted in a much larger reduction in charcoal use (54%) than did providing access to credit (41%). We highlight the importance of relaxing households' financial constraints and improving access to credit to encourage urban households to switch to clean energy sources and save the remaining forest resources of Africa.

### **Paper 4: Why (field) experiments on unethical behavior are important: Comparing stated and revealed behavior**

Understanding unethical behavior is essential to many phenomena in the real world. The vast majority of existing studies have relied on stated behavior in surveys and some on incentivized experiments in the laboratory. In this paper, we carry out a field experiment in a unique setting. A survey more than one year before the field experiment allows us to compare stated unethical behavior with revealed behavior in the same situation. Our results indicate a strong discrepancy between stated and revealed behavior. This suggests that, given a natural setting, people may actually behave differently from what they would otherwise "brand" themselves to be, cautioning the interpretation of stated behavioral measures commonly used in research on unethical behavior.

**Keywords** adaptation to climate change, ambiguity, artefactual field experiment, behavioral economics, charcoal, credit, deforestation, endogenous switching regression, field experiment, guilt, honesty, impact evaluation, kindness, liquidity constraint, LPG stoves, rice marketing, risk preferences, system of rice intensification, Tanzania, time preferences

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